Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

'55'

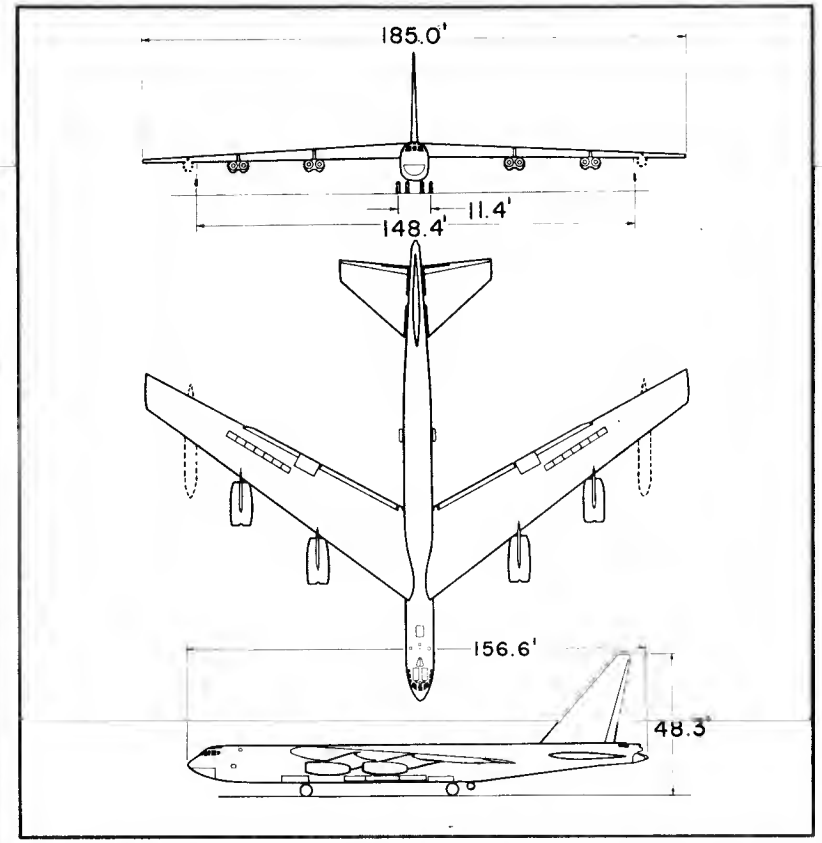
B-52C & D

STRATOFORTRESS

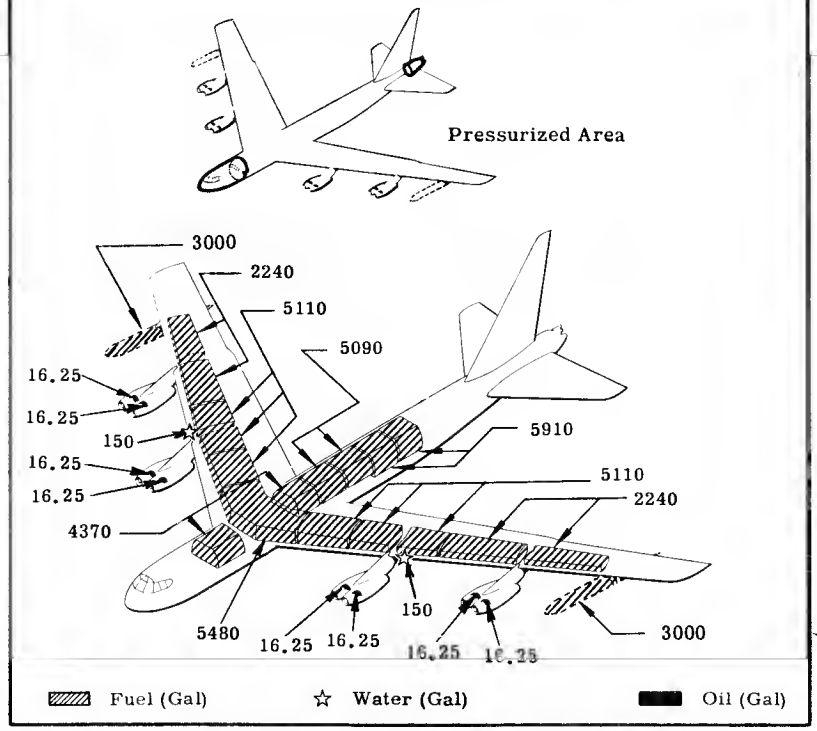
Boeing

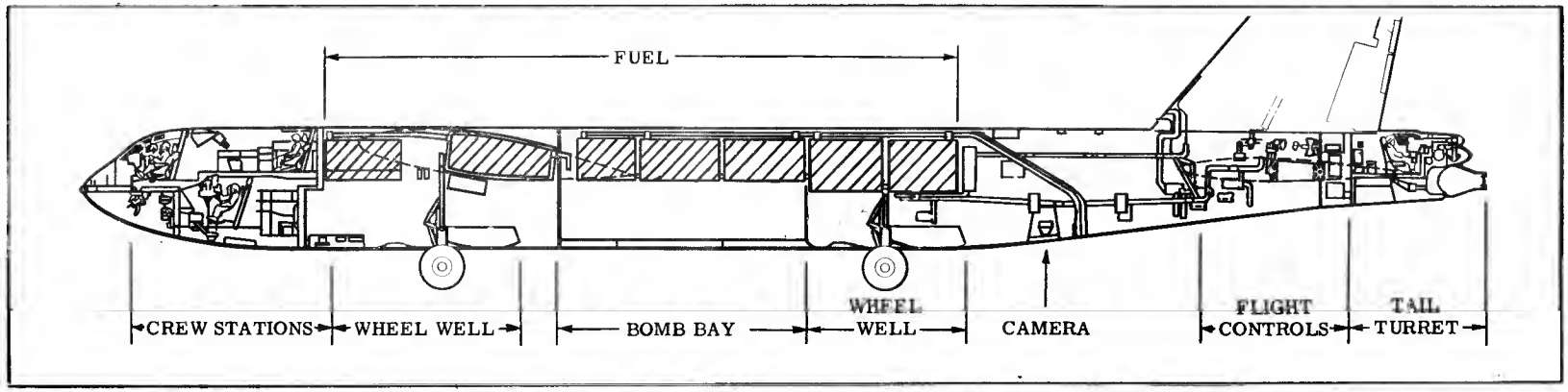
EIGHT J57-P-19W, or 29WA
PRATT & WHITNEY

24 MAR 58



Wing Area	4000 sq ft	Wing.Section (root)	BAC 233 19.31
Aspect Ratio	8.55	(tip)	BAC 236 9.56
		M.A.C.	275.5"





POWER PLANT

Nr & Model	(8) J57-P-19W, or -29WA
Mfr	Pratt & Whitney
Engine Spec Nr	A-1649G
Type	Axial
Length	157.7"
Diameter	40.5"
Weight (dry)	(J57-P-19W) 3970 lb
Tail Pipe	Fixed Area
Augmentation	Water

Note: At present there are no requirements for ATO

J57-P-29WA engine . . . 4150 lb

ENGINE RATINGS

S.L. Static	LB	-	**RPM	-	MIN
Max:	*12,100	-	6450/9900	-	5
Mil:	10,500	-	6150/9900	-	30
Nor:	9000	-	5900/9650	-	Cont

*Wet

**First figure represents low pressure spool; second figure represents high pressure spool.

Mission and Description

Navy Equivalent: None

Mfr's Model: 464-201-7 (B-52D)
464-201-6 (B-52C)

The principal mission of the B-52C aircraft is the destruction of surface objects.

Characteristics and performance for the B-52D are similiar to the B-52C except the B-52D does not have the reconnaissance capsule conversion provision.

The normal crew of six consists of pilot, co-pilot, (2) bombardier-navigators, ECM operator and tail gunner.

Automatic cabin pressurization, heating and ventilation are provided for crew comfort during normal and combat operation.

Ejection seats for emergency escape are afforded the crew except for the tail gunner who bails out after jettisoning the tail section containing the gun turret.

Flight control, throughout the speed range from limit dive speed to landing speed is accomplished by use of spoilers and ailerons on the wing; elevators on an all-movable horizontal tail; and a rudder on a fixed vertical tail surface. The spoilers also function as air brakes used in landing.

Air is bled off the engines for thermal anti-icing of the wing and tail surface leading edges.

Other features are single-point ground and air refueling, braking parachute for decreasing landing roll distance, and a crosswind landing gear to aid in cross-wind take-off and landing. The airplane utilizes the A-14 Auto-Pilot and the N-1 Compass.

The B-52C & D differ from the B-52's with the -19W engines by an increase in fuel tank capabilities. See Note (c) page 6

Development

	B-52C	B-52D
Design Initiated:	Dec 53	Dec 53
First Flight:	Mar 56	Aug 56
First Delivery to SAC:	June 56	June 56

WEIGHTS

Loading	Lb	L.F.
Empty	164,486 (C)	
Basic	167,920 (C)	
Design	†453,000	2.0
Combat	*283,100	2.4
Max T.O.	**450,000	2.0
Max In-Flt	‡450,000	2.0
Max Land	270,000	

(C) Calculated
* For Basic Mission
** Excludes 2500 lb water
† Max taxi wt, 10,000 lb bomb
‡ Limited by structure

F U E L

Location	Nr Tanks	Gal
Wg, outbd	2	4480
Wg, ctr	1	5480
Wg, inbd*	4	10,220
Fus, fwd*	2	4370
Fus, ctr*	1	5090
Fus, aft*	1	5910
Wg, drop	2	6000
	Total	41,550

Grade JP-4
Specification MIL-F-5624

OIL

Nacelle . . . . 8 . . . . (tot) 130
Specification MIL-L-7808A

WATER

Wg, L.E. 2 300
*Self-Sealing

DIMENSIONS

Wing	
Span	185.0'
Dihedral (chord plane)	2°30'
Incidence (root)	6°
Sweepback (LE)	36°58'
Length	156.6'
Height (overall)	48.3'
Height (fin folded)	20.8'
Tread (outrigger)	148.4'
Tread (main gear)	11.4'

B O M B S

Nr	Class (lb)
New Series	
27. . (Family of Clusters). .	1000
Special Weapons	
1	MK-6
2	MK-21
Max Bomb Load (1). . . .	43,000

Note: Structural provisions for 50,000 lb bomb; space and structural provisions for XB-63

G U N S

Nr	Type	Size	Rds ea	Loc
4	M-3	.50	600	Tail, tur

CAMERAS

Nr	Type	Lens
1	K-38	36"
1	K-22	6"
	or	
1	K-17D	6"
1	O-15 Radar Recording	

ELECTRONICS

UHF Command	AN/ARC-34
Liaison	AN/ARC-21X
IFF	AN/APX-25
Radar Beacon	AN/APN-76A
ECM Trans (2)	AN/APT-6
ECM Trans (1)	AN/APT-9
ECM Trans (2)	AN/ALT-7
ECM Receiver (1)	AN/APR-14
Interphone	AN/AIC-10
Bombing Sys	MA-6A
Nav Recv'r	AN/ARN-14
Fire Control Sys	*

See page 6 for additional equipment.
* A-3A utilized in "C" airplane
MD-9 utilized in "D" airplane

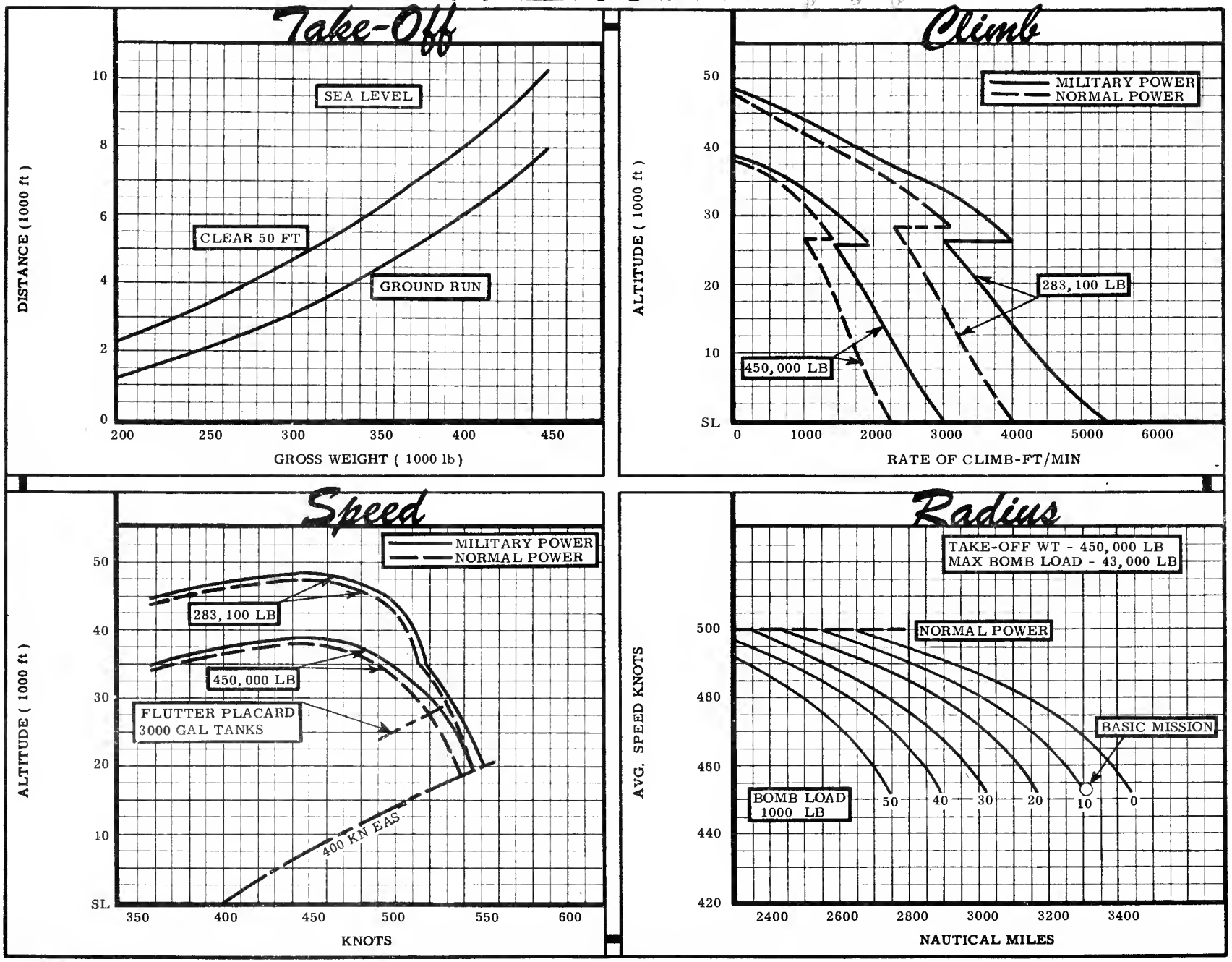
Loading and Performance — Typical Mission

CONDITIONS		BASIC MISSION	DESIGN MISSION	MAX BOMB MISSION	FERRY RANGE
		I	II	III	IV
TAKE-OFF WEIGHT ⑦	(lb)	450,000	450,000	450,000	442,935 ⑧
Fuel at 6.5 lb/gal (grade JP-4)	(lb)	267,140	268,540	233,315	270,075 ⑧
Payload (Bombs)	(lb)	10,000	8600	43,000	None
Wing loading	(lb/sq ft)	112.5	112.5	112.5	110.7
Stall speed (power off) ⑨	(kn)	147	147	147	146
Take-off ground run at SL ①	(ft)	8000	8000	8000	7690
Take-off to clear 50 ft ①	(ft)	10,300	10,300	10,300	9950
Rate of climb at SL ③	(fpm)	2225	2225	2225	2270
Rate of climb at SL (one engine out) ②	(fpm)	2440	2440	2440	2480
Time: SL to 20,000 ft ③	(min)	10.8	10.8	10.8	10.5
Time: SL to 30,000 ft ③	(min)	18.0	18.0	18.0	17.6
Service ceiling (100 fpm) ③	(ft)	37,550	37,550	37,550	37,900
Service ceiling (one engine out) ②	(ft)	37,050	37,050	37,050	37,400
COMBAT RANGE ④	(n. mi)	———	———	———	6825
COMBAT RADIUS ④	(n. mi)	3305	3325	2835	———
Average cruise speed	(kn)	453	453	453	453
Initial cruising altitude	(ft)	33,500	33,500	33,500	33,800
Target speed ③	(kn)	476	476	476	———
Target altitude	(ft)	45,000	45,050	43,950	———
Final cruising altitude	(ft)	50,750	50,750	50,850	50,750
Total mission time	(hr)	14.66	14.75	12.57	15.10
COMBAT WEIGHT	(lb)	283,100	283,900	266,000	188,500
Combat altitude	(ft)	45,000	45,050	43,950	50,750
Combat speed ②	(kn)	495	495	505	507
Combat climb ②	(fpm)	775	770	1210	1210
Combat ceiling (500 fpm) ②	(ft)	46,350	46,250	47,500	54,650
Service ceiling (100 fpm) ③	(ft)	46,950	46,900	48,100	55,500
Service ceiling (one engine out) ③	(ft)	45,300	45,250	46,500	53,500
Max rate of climb at SL ②	(fpm)	5310	5300	5720	8270
Max speed at optimum alt ② ⑤	(kn/ft)	551/20,200	551/20,200	552/20,350	553/20,500
Basic speed at 35,000 ft ②	(kn)	520	520	521	525
LANDING WEIGHT	(lb)	188,300	188,400	187,500	188,500
Ground roll at SL ⑩	(ft)	2250	2250	2230	2250
Ground roll (auxiliary brake) ⑥ ⑩	(ft)	2020	2020	2000	2020
Total from 50 ft ⑩	(ft)	4270	4270	4250	4280
Total from 50 ft (auxiliary brake) ⑥ ⑩	(ft)	4040	4040	4010	4050

NOTES

① Take-off power
② Military power
③ Normal power
④ Detailed descriptions of RADIUS and RANGE missions given on page 6.
⑤ Limited by structure
⑥ With drag chute
⑦ Excludes 2500 lb water
⑧ Limited by fuel capacity
⑨ Initial buffet, flaps down, S.L.
⑩ Braking force limited to 40,000 lb

PERFORMANCE BASIS:
(a) Data source: Flight test
(b) Performance is based on powers shown on page 3.



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NOTES

FORMULA: RADIUS MISSIONS I, II & III

Take-off and climb on course to optimum cruise altitude at normal power. Cruise out at long range speed, increasing altitude with decreasing weight; external tanks are dropped when empty. Climb so as to reach cruise ceiling 15 minutes from target. Run in to target at normal power, drop bombs, conduct 2 minutes evasive action and 8 minutes escape at normal power. Cruise back to base at long range speed and optimum altitudes; as an alternate, a 45,000 foot ceiling may be maintained on the return leg with no radius penalty. Range-free allowances are fuel for 5 minutes at normal power for take-off, fuel for 2 minutes at normal power for evasive action, and fuel for 30 minutes maximum endurance at sea level plus 5% of the initial fuel load for landing reserve.

FORMULA: RANGE MISSION IV

Take-off and climb on course to optimum cruise altitude at normal power. Cruise out at long range speed, increasing altitude with decreasing weight; external tanks are dropped when empty. Land at remote base with only reserve fuel remaining. Range-free allowances are fuel for 5 minutes at normal power for take-off, and fuel for 30 minutes maximum endurance at sea level plus 5% of the initial fuel load for landing reserve.

GENERAL DATA:

(a) The landing reserve for the Basic Mission is equivalent to 800 nautical miles range at optimum speed and altitude.

(b) The following electronic equipment is supplemental to that shown under "Electronics" on page 3:

Glide Path Receiver	(1) AN/ARN-18
Marker Beacon	(1) AN/ARN-12
Early Warning	(1) AN/APS-54
Chaff Dispenser	(1) AN/ALE-1

(c) O.W.E. increases approximately 2000 lb on B-52 airplanes utilizing J57-P-29WA engines resulting in a minor range decrease for a given T.O. Weight.

PERFORMANCE REFERENCE:

Boeing document D-15134B, "Substantiation Data Report - Models B-52B (J57-P-19W engines), B-52C and B-52D Standard Aircraft Characteristics Charts", dated 31 December 1956.

REVISION BASIS:

To incorporate latest flight test data.